ABSTRACT

A method of making a spinel-structured metal oxide on a substrate by molecular beam epitaxy, comprising the step of supplying activated oxygen, a first metal atom flux, and at least one other metal atom flux to the surface of the substrate, wherein the metal atom fluxes are individually controlled at the substrate so as to grow the spinel-structured metal oxide on the substrate and the metal oxide is substantially in a thermodynamically stable state during the growth of the metal oxide. A particular embodiment of the present invention encompasses a method of making a spinel-structured binary ferrite, including Co ferrite, without the need of a post-growth anneal to obtain the desired equilibrium state.